

SEQUENCE LISTING

<110> Downie, Bruce
Zhao, Tian-Yong
Meeley, Robert
Bradford, Kent

<120> Stress Responsive Genes, Regulatory Elements, and Methods of Use for Same

<130> RTS4647

<160> 16

<170> PatentIn version 3.0

<210> 1

<211> 1483

<212> DNA

<213> Zea mays

<220>

<221> CDS

<222> (121)..(1155)

<400> 1

ccacgcgtcc ggcaaataca agctctcagt tagaccacac tcaaaccagc cacggacagc 60

ctcaaaatcc cgagcaggag ctcgctcgta gccccgagaa cccgaaagct ctgcagcgag 120

atg tct ccc gag ctg acc ggc aag atg gcc gcc aag gcc gcc gcc gcc 168
Met Ser Pro Glu Leu Thr Gly Lys Met Ala Ala Lys Ala Ala Ala Ala
1 5 10 15

gct gcg gcg gtg aag ccc gcg acg agg gcg tac gtg acg ttc ctg gcg 216
Ala Ala Ala Val Lys Pro Ala Thr Arg Ala Tyr Val Thr Phe Leu Ala
20 25 30

ggc aac ggc gac tac tgg aag ggc gtg gtg ggc ctg gcc aag ggc ctg 264
Gly Asn Gly Asp Tyr Trp Lys Gly Val Val Gly Leu Ala Lys Gly Leu
35 40 45

cgc aag gtc ggc tcg gcc tat ccc ctg gtg gtg gcc ctt ctg ccc gac 312
Arg Lys Val Gly Ser Ala Tyr Pro Leu Val Val Ala Leu Leu Pro Asp
50 55 60

gtg ccg gag tcc cac cgc cgc atc ctc gtc tcg cag ggc tgc atc ctc 360
Val Pro Glu Ser His Arg Arg Ile Leu Val Ser Gln Gly Cys Ile Leu
65 70 75 80

cgc gag atc gag ccc gtg tac ccg cct gag aac cag acg cag ttc gcc 408
Arg Glu Ile Glu Pro Val Tyr Pro Pro Glu Asn Gln Thr Gln Phe Ala
85 90 95

atg gcg tac tac gtc atc aac tac tcc aag ctc cgc atc tgg gag ttc 456
Met Ala Tyr Tyr Val Ile Asn Tyr Ser Lys Leu Arg Ile Trp Glu Phe
100 105 110

gtg gag tac gag aag atg gtg tac ctg gac gcg gac atc cag gtg ttc Val Glu Tyr 115 Glu Lys Met Val Tyr 120 Leu Asp Ala Asp 125 Ile Gln Val Phe	504
gag aac atc gac gag ctg ttc gag ctc gag aaa ggg tac ttc tac gcg Glu Asn Ile Asp Glu Leu Phe 135 Glu Leu Glu Lys Gly 140 Tyr Phe Tyr Ala	552
gtg atg gac tgc ttc tgc gaa aag acg tgg agc cac acc ccg cag tac Val Met Asp Cys Phe Cys 150 Glu Lys Thr Trp Ser 155 His Thr Pro Gln Tyr 160	600
aag atc ggg tac tgc caa cag tgc ccg gac aag gtg acg tgg ccg acc Lys Ile Gly Tyr Cys 165 Gln Gln Cys Pro Asp 170 Lys Val Thr Trp Pro Thr 175	648
acc gag ctg ggc cct ccg ccc ccg ctc tac ttc aat gcc ggg atg ttc Thr Glu Leu Gly 180 Pro Pro Pro Pro Leu Tyr Phe Asn Ala Gly Met Phe 190	696
gcg cac gag ccc agc atg gcc acc gcc aag gca ctc ctc gac acc ctc Ala His Glu Pro Ser Met Ala Thr 200 Ala Lys Ala Leu Leu Asp Thr Leu 205	744
cgc gtc act ccg ccc acc ccc ttc gca gag caa gac ttc ctg aac atg Arg Val Thr Pro Pro Thr Pro Phe Ala Glu Gln Asp 220 Phe Leu Asn Met 210 215 220	792
ttc ttc agg gac cag tac agg ccg atc cct aac gtg tac aac ctc gtg Phe Phe Arg Asp Gln Tyr Arg Pro Ile Pro Asn Val Tyr Asn Leu Val 225 230 235 240	840
ctc ccc atg ctc tgg agg cac ccc gag aac gtg caa ctt gag aaa gtg Leu Pro Met Leu Trp Arg His Pro Glu Asn Val Gln Leu Glu Lys Val 245 250 255	888
aaa gtc gtg cac tac tgc gcg gcg ggg tcc aag ccg tgg agg ttc acg Lys Val Val His Tyr Cys Ala Ala Gly Ser Lys Pro Trp Arg Phe Thr 260 265 270	936
ggc aag gag gcc aac atg gac agg gag gac atc aag tcg ctg gtg aac Gly Lys Glu Ala Asn Met Asp Arg Glu Asp Ile Lys Ser Leu Val Asn 275 280 285	984
aag tgg tgg gac atc tac aac gac gag tcg ctg gac ttc aag ggc ctg Lys Trp Trp Asp Ile Tyr Asn Asp Glu Ser Leu Asp Phe Lys Gly Leu 290 295 300	1032
ccc ctc tcg ccc gcc gac gcc gac gcc gac gag gtg gag gcg gtg Pro Leu Ser Pro Ala Asp Ala Asp Ala Asp Asp Glu Val Glu Ala Val 305 310 315 320	1080
gcc aag aag ccg ctc cgc gcg gcg ctg gcg gag gcc ggc acg gtc aag Ala Lys Lys Pro Leu Arg Ala Ala Leu Ala Glu Ala Gly Thr Val Lys 325 330 335	1128
tac gtc acc gcg ccc tcg gcc gcg tga ccccgctgctt cggtttcccg	1175

Tyr Val Thr Ala Pro Ser Ala Ala
340

ccggtggccg cgctatggct tttgcgtagt cgtcacaagt tcgtaaagaa gaatctcact 1235
atatggcctt tgttttgaat tttgtttatg aattagggtg tctaattttg gatcagttcc 1295
tttcccttgt gtgtctaatt aggggtgtgag cttatatata taagtaccaa ttcaagggtgc 1355
aagcgttcgt caggaattgg gctttatgga tacgcccttc ggtcacagct agagtatttg 1415
tcctgtaccg aggattatg tttattttgc ttggtgaatt aatatataaa atacgaagct 1475
gcgaaaaat 1483

<210> 2
<211> 344
<212> PRT
<213> Zea mays

<400> 2

Met Ser Pro Glu Leu Thr Gly Lys Met Ala Ala Lys Ala Ala Ala Ala
1 5 10 15

Ala Ala Ala Val Lys Pro Ala Thr Arg Ala Tyr Val Thr Phe Leu Ala
20 25 30

Gly Asn Gly Asp Tyr Trp Lys Gly Val Val Gly Leu Ala Lys Gly Leu
35 40 45

Arg Lys Val Gly Ser Ala Tyr Pro Leu Val Val Ala Leu Leu Pro Asp
50 55 60

Val Pro Glu Ser His Arg Arg Ile Leu Val Ser Gln Gly Cys Ile Leu
65 70 75 80

Arg Glu Ile Glu Pro Val Tyr Pro Pro Glu Asn Gln Thr Gln Phe Ala
85 90 95

Met Ala Tyr Tyr Val Ile Asn Tyr Ser Lys Leu Arg Ile Trp Glu Phe
100 105 110

Val Glu Tyr Glu Lys Met Val Tyr Leu Asp Ala Asp Ile Gln Val Phe
115 120 125

Glu Asn Ile Asp Glu Leu Phe Glu Leu Glu Lys Gly Tyr Phe Tyr Ala
130 135 140

Val Met Asp Cys Phe Cys Glu Lys Thr Trp Ser His Thr Pro Gln Tyr
 145 150 155 160

Lys Ile Gly Tyr Cys Gln Gln Cys Pro Asp Lys Val Thr Trp Pro Thr
 165 170 175

Thr Glu Leu Gly Pro Pro Pro Pro Leu Tyr Phe Asn Ala Gly Met Phe
 180 185 190

Ala His Glu Pro Ser Met Ala Thr Ala Lys Ala Leu Leu Asp Thr Leu
 195 200 205

Arg Val Thr Pro Pro Thr Pro Phe Ala Glu Gln Asp Phe Leu Asn Met
 210 215 220

Phe Phe Arg Asp Gln Tyr Arg Pro Ile Pro Asn Val Tyr Asn Leu Val
 225 230 235 240

Leu Pro Met Leu Trp Arg His Pro Glu Asn Val Gln Leu Glu Lys Val
 245 250 255

Lys Val Val His Tyr Cys Ala Ala Gly Ser Lys Pro Trp Arg Phe Thr
 260 265 270

Gly Lys Glu Ala Asn Met Asp Arg Glu Asp Ile Lys Ser Leu Val Asn
 275 280 285

Lys Trp Trp Asp Ile Tyr Asn Asp Glu Ser Leu Asp Phe Lys Gly Leu
 290 295 300

Pro Leu Ser Pro Ala Asp Ala Asp Ala Asp Asp Glu Val Glu Ala Val
 305 310 315 320

Ala Lys Lys Pro Leu Arg Ala Ala Leu Ala Glu Ala Gly Thr Val Lys
 325 330 335

Tyr Val Thr Ala Pro Ser Ala Ala
 340

<210> 3
 <211> 1481
 <212> DNA

<213> Zea mays

<220>

<221> CDS

<222> (111)..(1157)

<400> 3

```
ccacgcgtcc gagcgcttaa accacactca aaccaaccgc cagccaacaa acaggcctcc      60

tagtccccgac caagaactcg ctcgtagccc cgagaacccg acagcgcgag atg gct      116
                                     Met Ala
                                     1

ccc gag ctg atg aca gcc aag atg acc gcc aat gcc gcc gcg gcg gcg      164
Pro Glu Leu Met Thr Ala Lys Met Thr Ala Asn Ala Ala Ala Ala Ala
      5                                10                                15

gcg gcg gcg gcg gcg gcg aag cct gcc acg agg gcg tac gtg acg ttc      212
Ala Ala Ala Ala Ala Ala Lys Pro Ala Thr Arg Ala Tyr Val Thr Phe
      20                                25                                30

ctg gcg ggc gac ggc gac tac tgg aag ggc gtg gtg ggg ctg gcc aag      260
Leu Ala Gly Asp Gly Asp Tyr Trp Lys Gly Val Val Gly Leu Ala Lys
      35                                40                                45                                50

ggc ctc cgc aag gtc cgc tcg gcc tac ccc ctg gtg gtg gcc gtg ctg      308
Gly Leu Arg Lys Val Arg Ser Ala Tyr Pro Leu Val Val Ala Val Leu
      55                                60                                65

ccc gac gtg ccc gag tcc cac cgc cgc atc ctc gtc tcg cag ggc tgc      356
Pro Asp Val Pro Glu Ser His Arg Arg Ile Leu Val Ser Gln Gly Cys
      70                                75                                80

gtc gtc cgc gag atc gag ccc gtg tac ccg cct gag aac cag acg cag      404
Val Val Arg Glu Ile Glu Pro Val Tyr Pro Pro Glu Asn Gln Thr Gln
      85                                90                                95

ttc gcc atg gcg tac tac gtc atc aac tac tcc aag ctc cgc atc tgg      452
Phe Ala Met Ala Tyr Tyr Val Ile Asn Tyr Ser Lys Leu Arg Ile Trp
      100                               105                               110

gag ttc gtg gag tac gag agg atg gtg tac ctg gac gcg gac atc cag      500
Glu Phe Val Glu Tyr Glu Arg Met Val Tyr Leu Asp Ala Asp Ile Gln
      115                               120                               125                               130

gtg ttc gag aac atc gac ggc ctg ttc gag ctc gag aaa ggg tac ttc      548
Val Phe Glu Asn Ile Asp Gly Leu Phe Glu Leu Glu Lys Gly Tyr Phe
      135                               140                               145

tac gcg gtg atg gcc ggc ttc tgc gaa aaa acg tgg agc cac acc ccg      596
Tyr Ala Val Met Ala Gly Phe Cys Glu Lys Thr Trp Ser His Thr Pro
      150                               155                               160

cag tac agg atc ggc tac tgc caa cag tgc ccg gac aag gtg gcg tgg      644
Gln Tyr Arg Ile Gly Tyr Cys Gln Gln Cys Pro Asp Lys Val Ala Trp
      165                               170                               175
```

cca acg cga acg gcc gag ctg ggc ctc ccg ccg tcc tcc tac ttc aac	692
Pro Thr Arg Thr Ala Glu Leu Gly Leu Pro Pro Ser Ser Tyr Phe Asn	
180 185 190	
gcc gga atg ttc ttg aag gag cca aac ttg gca acc gca aag ggg tcc	740
Ala Gly Met Phe Leu Lys Glu Pro Asn Leu Ala Thr Ala Lys Gly Ser	
195 200 205 210	
ccc gaa acc ctc cgg ttg att ccg cca acc ccc ttc gca aag aag gac	788
Pro Glu Thr Leu Arg Leu Ile Pro Pro Thr Pro Phe Ala Lys Lys Asp	
215 220 225	
ttc ctg aaa atg ttc ttc agg gat aat tac agg ccg atc ccc aac gtt	836
Phe Leu Lys Met Phe Phe Arg Asp Asn Tyr Arg Pro Ile Pro Asn Val	
230 235 240	
tac aac ctc gtg ctg gcc atg ctt tgg agg cac ccc gag aac gtg cag	884
Tyr Asn Leu Val Leu Ala Met Leu Trp Arg His Pro Glu Asn Val Gln	
245 250 255	
ctg gag aag gtg aag gtc gtg cat tat tgc gcg gcg ggg tcc aag ccg	932
Leu Glu Lys Val Lys Val Val His Tyr Cys Ala Ala Gly Ser Lys Pro	
260 265 270	
tgg agg ttc acg ggc aag gag gcg aac atg gac agg gag gac atc aac	980
Trp Arg Phe Thr Gly Lys Glu Ala Asn Met Asp Arg Glu Asp Ile Asn	
275 280 285 290	
gcc ctg gtg aag aag tgg tgg gac atc tac aac gac gag acg ctg gac	1028
Ala Leu Val Lys Lys Trp Trp Asp Ile Tyr Asn Asp Glu Thr Leu Asp	
295 300 305	
ttg aag ggc tgc ctc gct tct cgc ccg acg acg acg acg agg tgg agg	1076
Leu Lys Gly Cys Leu Ala Ser Arg Pro Thr Thr Thr Thr Arg Trp Arg	
310 315 320	
cgg tgc cca aga agc cgc ttc gcg cgg cct tgg cgg agg ccg gca cgg	1124
Arg Cys Pro Arg Ser Arg Phe Ala Arg Pro Trp Arg Arg Pro Ala Arg	
325 330 335	
tca aag tac gtc acc gcg ccc tcg gcc gcg tga tcccggtgctc tggccttccc	1177
Ser Lys Tyr Val Thr Ala Pro Ser Ala Ala	
340 345	
caccgcgcac cggtggccgc gcgctatagc ttcgtgtgtg gccatcgcg aacataagaa	1237
gaatctctca ctataaagg ccttctgtgt ttgcattttg gttttggatt aggggtgtcta	1297
atttttcacc agttcctttt ccccttgtgt aagtgtggag ctactatat agctagcgcc	1357
catttcaagg tgctgcaagc gttggtcagg aattgggcta gagtgtttgt cctgtaccga	1417
gggattatgt gtatttttgc tatttcgctc ggtataattc atccattaat aaatagggag	1477
ccgc	1481

<210> 4
 <211> 348
 <212> PRT
 <213> Zea mays

<400> 4

Met Ala Pro Glu Leu Met Thr Ala Lys Met Thr Ala Asn Ala Ala Ala
 1 5 10 15

Ala Ala Ala Ala Ala Ala Ala Ala Lys Pro Ala Thr Arg Ala Tyr Val
 20 25 30

Thr Phe Leu Ala Gly Asp Gly Asp Tyr Trp Lys Gly Val Val Gly Leu
 35 40 45

Ala Lys Gly Leu Arg Lys Val Arg Ser Ala Tyr Pro Leu Val Val Ala
 50 55 60

Val Leu Pro Asp Val Pro Glu Ser His Arg Arg Ile Leu Val Ser Gln
 65 70 75 80

Gly Cys Val Val Arg Glu Ile Glu Pro Val Tyr Pro Pro Glu Asn Gln
 85 90 95

Thr Gln Phe Ala Met Ala Tyr Tyr Val Ile Asn Tyr Ser Lys Leu Arg
 100 105 110

Ile Trp Glu Phe Val Glu Tyr Glu Arg Met Val Tyr Leu Asp Ala Asp
 115 120 125

Ile Gln Val Phe Glu Asn Ile Asp Gly Leu Phe Glu Leu Glu Lys Gly
 130 135 140

Tyr Phe Tyr Ala Val Met Ala Gly Phe Cys Glu Lys Thr Trp Ser His
 145 150 155 160

Thr Pro Gln Tyr Arg Ile Gly Tyr Cys Gln Gln Cys Pro Asp Lys Val
 165 170 175

Ala Trp Pro Thr Arg Thr Ala Glu Leu Gly Leu Pro Pro Ser Ser Tyr
 180 185 190

Phe Asn Ala Gly Met Phe Leu Lys Glu Pro Asn Leu Ala Thr Ala Lys
 195 200 205

Gly Ser Pro Glu Thr Leu Arg Leu Ile Pro Pro Thr Pro Phe Ala Lys
 210 215 220

Lys Asp Phe Leu Lys Met Phe Phe Arg Asp Asn Tyr Arg Pro Ile Pro
 225 230 235 240

Asn Val Tyr Asn Leu Val Leu Ala Met Leu Trp Arg His Pro Glu Asn
 245 250 255

Val Gln Leu Glu Lys Val Lys Val Val His Tyr Cys Ala Ala Gly Ser
 260 265 270

Lys Pro Trp Arg Phe Thr Gly Lys Glu Ala Asn Met Asp Arg Glu Asp
 275 280 285

Ile Asn Ala Leu Val Lys Lys Trp Trp Asp Ile Tyr Asn Asp Glu Thr
 290 295 300

Leu Asp Leu Lys Gly Cys Leu Ala Ser Arg Pro Thr Thr Thr Thr Arg
 305 310 315 320

Trp Arg Arg Cys Pro Arg Ser Arg Phe Ala Arg Pro Trp Arg Arg Pro
 325 330 335

Ala Arg Ser Lys Tyr Val Thr Ala Pro Ser Ala Ala
 340 345

<210> 5
 <211> 1487
 <212> DNA
 <213> Zea mays

<220>
 <221> CDS
 <222> (129)..(1166)

<400> 5
 ccacgcgtcc gctcaagcaa aaacacaaag cgcttaaacc acactcaaac caaccgcaa 60
 caaacaggcc tcttagtccc gaccagaact tgctcgtagc cccgcccccg agaacccgac 120
 agcgcgag atg gct ccc gag ctg atg aca gcc aag atg acc gcc aaa gcc 170
 Met Ala Pro Glu Leu Met Thr Ala Lys Met Thr Ala Lys Ala
 1 5 10
 gcg gcg gcg gcg gcg gcg gtg aag cct gcc acg agg gcg tac gtg acg 218

Ala 15	Ala	Ala	Ala	Ala	Ala 20	Val	Lys	Pro	Ala	Thr 25	Arg	Ala	Tyr	Val	Thr 30	
ttc	ctt	gcg	ggc	gac	ggc	gac	tac	tgg	aag	ggc	gtg	gtg	ggg	ctg	gcc	266
Phe	Leu	Ala	Gly	Asp 35	Gly	Asp	Tyr	Trp	Lys 40	Gly	Val	Val	Gly	Leu 45	Ala	
aaa	ggc	ctg	cgc	aag	gtc	cgc	tcg	gcc	tac	ccc	ctg	gtg	gtg	gcg	gtg	314
Lys	Gly	Leu	Arg 50	Lys	Val	Arg	Ser	Ala 55	Tyr	Pro	Leu	Val	Val	Ala 60	Val	
ctg	ccc	gac	gtg	ccc	gag	tcc	cac	cgc	cgc	atc	ctc	gtc	tcg	cag	ggc	362
Leu	Pro	Asp 65	Val	Pro	Glu	Ser	His 70	Arg	Arg	Ile	Leu	Val	Ser	Gln	Gly	
tgc	gtc	gtc	cgc	gag	atc	gag	ccc	gtg	tac	ccg	cct	gag	aac	cag	acg	410
Cys	Val	Val	Arg	Glu	Ile	Glu	Pro 85	Val	Tyr	Pro	Pro	Glu	Asn	Gln	Thr	
	80										90					
cag	ttc	gcc	atg	gcg	tac	tac	gtc	atc	aac	tac	tcc	aag	ctc	cgc	atc	458
Gln	Phe	Ala	Met	Ala	Tyr	Tyr	Val 100	Ile	Asn	Tyr 105	Ser	Lys	Leu	Arg	Ile 110	
95																
tgg	gag	ttc	gtg	gag	tac	gag	agg	atg	gtg	tac	ctg	gac	gcg	gac	atc	506
Trp	Glu	Phe	Val	Glu	Tyr	Glu	Arg	Met	Val	Tyr 120	Leu	Asp	Ala	Asp 125	Ile	
cag	gtg	ttc	gag	aac	atc	gac	ggc	ctg	ttc	gag	ctc	gag	aag	ggg	tac	554
Gln	Val	Phe	Glu	Asn	Ile	Asp	Gly	Leu 135	Phe	Glu	Leu	Glu	Lys	Gly 140	Tyr	
ttc	tac	gcg	gtg	atg	gac	tgc	ttc	tgc	gag	aag	acg	tgg	agc	cac	acc	602
Phe	Tyr	Ala	Val	Met	Asp	Cys	Phe 150	Cys	Glu	Lys	Thr	Trp	Ser	His	Thr	
ccg	cag	tac	agg	atc	ggc	tac	tgc	cag	cag	tgc	ccg	gac	aag	gtg	gcg	650
Pro	Gln	Tyr	Arg	Ile	Gly	Tyr	Cys 165	Gln	Gln	Cys	Pro	Asp	Lys	Val	Ala	
tgg	cca	gcg	gcg	acc	gcc	gag	ctg	ggc	cct	ccg	ccg	tcg	ctc	tac	ttc	698
Trp	Pro	Ala	Ala	Thr	Ala	Glu	Leu 180	Gly	Pro	Pro	Pro	Ser	Leu	Tyr	Phe 190	
aac	gcc	ggc	atg	ttc	gtg	cac	gag	ccc	agc	gtg	gcc	acc	gcc	aag	gcg	746
Asn	Ala	Gly	Met	Phe	Val	His	Glu	Pro	Ser 200	Val	Ala	Thr	Ala	Lys 205	Ala	
ctc	ctc	gac	acc	ctc	cgc	gtg	act	ccg	ccc	acc	ccc	ttc	gca	gag	cag	794
Leu	Leu	Asp	Thr	Leu	Arg	Val	Thr	Pro	Pro	Thr	Pro	Phe	Ala	Glu	Gln	
gac	ttc	ctg	aac	atg	ttc	ttc	agg	gat	cag	tac	agg	ccg	atc	ccc	aac	842
Asp	Phe	Leu	Asn	Met	Phe	Phe	Arg	Asp	Gln	Tyr	Arg	Pro	Ile	Pro	Asn	
gtg	tac	aac	ctc	gtg	ctg	gcc	atg	ctc	tgg	agg	cac	ccc	gag	aac	gtg	890
Val	Tyr	Asn	Leu	Val	Leu	Ala	Met	Leu	Trp	Arg	His	Pro	Glu	Asn	Val	

240	245	250	
cag ctg gag aag gtg aag gtc gtg cac tac tgc gcg gcg ggg tcc aag			938
Gln Leu Glu Lys Val Lys Val Val His Tyr Cys Ala Ala Gly Ser Lys			
255	260	265	270
ccg tgg agg ttc acg ggc aag gag gcg aac atg gac agg gag gac atc			986
Pro Trp Arg Phe Thr Gly Lys Glu Ala Asn Met Asp Arg Glu Asp Ile			
	275	280	285
aac gcc ctg gtg aac aag tgg tgg gac atc tac aac gac gag acg ctg			1034
Asn Ala Leu Val Asn Lys Trp Trp Asp Ile Tyr Asn Asp Glu Thr Leu			
	290	295	300
gac ttg aag ggc ctg ccc tcg ctc tcg ccc gac gac gac gac gag gtg			1082
Asp Leu Lys Gly Leu Pro Ser Leu Ser Pro Asp Asp Asp Asp Glu Val			
	305	310	315
gag gcg gtg gcc aag aag ccg ctt cgc gcg gcc ctg gcg gag gcc ggc			1130
Glu Ala Val Ala Lys Lys Pro Leu Arg Ala Ala Leu Ala Glu Ala Gly			
	320	325	330
acg gtc aag tac gtc acc gcg ccc tcg gcc gcg tga tcccgtgctc			1176
Thr Val Lys Tyr Val Thr Ala Pro Ser Ala Ala			
335	340	345	
tggccttccc ccaccgcgca ccgtaccggt ggccgcgcgc tatagcttgt gtgtgtgtgg			1236
ccatcgcgga acataagaag aatctctcac tataaaggcc ttcgttctgt gtttgcattt			1296
tggtttttgga ttaggggtgtc taattttttca ccagttcctt ttccccttgt gtaagtgtgg			1356
agcttactat atagctagcg cccattttcaa ggtgtgtgcaa gcgttggtca ggaattgggc			1416
tagagtgttt gtcctgtacc gagggattat gtgtattttt gctatttcgc tcggtaaatt			1476
aataacaatat t			1487
<210> 6			
<211> 345			
<212> PRT			
<213> Zea mays			
<400> 6			
Met Ala Pro Glu Leu Met Thr Ala Lys Met Thr Ala Lys Ala Ala Ala			
1	5	10	15
Ala Ala Ala Ala Val Lys Pro Ala Thr Arg Ala Tyr Val Thr Phe Leu			
	20	25	30
Ala Gly Asp Gly Asp Tyr Trp Lys Gly Val Val Gly Leu Ala Lys Gly			
	35	40	45

Leu Arg Lys Val Arg Ser Ala Tyr Pro Leu Val Val Ala Val Leu Pro
 50 55 60

Asp Val Pro Glu Ser His Arg Arg Ile Leu Val Ser Gln Gly Cys Val
 65 70 75 80

Val Arg Glu Ile Glu Pro Val Tyr Pro Pro Glu Asn Gln Thr Gln Phe
 85 90 95

Ala Met Ala Tyr Tyr Val Ile Asn Tyr Ser Lys Leu Arg Ile Trp Glu
 100 105 110

Phe Val Glu Tyr Glu Arg Met Val Tyr Leu Asp Ala Asp Ile Gln Val
 115 120 125

Phe Glu Asn Ile Asp Gly Leu Phe Glu Leu Glu Lys Gly Tyr Phe Tyr
 130 135 140

Ala Val Met Asp Cys Phe Cys Glu Lys Thr Trp Ser His Thr Pro Gln
 145 150 155 160

Tyr Arg Ile Gly Tyr Cys Gln Gln Cys Pro Asp Lys Val Ala Trp Pro
 165 170 175

Ala Ala Thr Ala Glu Leu Gly Pro Pro Pro Ser Leu Tyr Phe Asn Ala
 180 185 190

Gly Met Phe Val His Glu Pro Ser Val Ala Thr Ala Lys Ala Leu Leu
 195 200 205

Asp Thr Leu Arg Val Thr Pro Pro Thr Pro Phe Ala Glu Gln Asp Phe
 210 215 220

Leu Asn Met Phe Phe Arg Asp Gln Tyr Arg Pro Ile Pro Asn Val Tyr
 225 230 235 240

Asn Leu Val Leu Ala Met Leu Trp Arg His Pro Glu Asn Val Gln Leu
 245 250 255

Glu Lys Val Lys Val Val His Tyr Cys Ala Ala Gly Ser Lys Pro Trp
 260 265 270

Arg Phe Thr Gly Lys Glu Ala Asn Met Asp Arg Glu Asp Ile Asn Ala
 275 280 285

Leu Val Asn Lys Trp Trp Asp Ile Tyr Asn Asp Glu Thr Leu Asp Leu
 290 295 300

Lys Gly Leu Pro Ser Leu Ser Pro Asp Asp Asp Asp Glu Val Glu Ala
 305 310 315 320

Val Ala Lys Lys Pro Leu Arg Ala Ala Leu Ala Glu Ala Gly Thr Val
 325 330 335

Lys Tyr Val Thr Ala Pro Ser Ala Ala
 340 345

<210> 7
 <211> 2278
 <212> DNA
 <213> Zea mays

<220>
 <221> CDS
 <222> (200)..(2278)

<400> 7
 cacgcgctccg caggtagtag cttagctagc gtgataatca ccgcgctaaa ctgatcatat 60
 atacacagca attgtcgtgt gacaggacag aggaggaggg gcaggctggt aatatctagc 120
 aaaagtacaa gcgttcctcc agtggcgtcc agcgctatat agttcgctgt ccggcgctcct 180
 ttccgaccga gcgcgagcg atg acg gtg acg ccg agg att acg gtg ggg gat 232
 Met Thr Val Thr Pro Arg Ile Thr Val Gly Asp
 1 5 10
 ggg cgg ctg gtg gcg cac ggg cgg agc gtc ctc gcc ggc gtg ccg gac 280
 Gly Arg Leu Val Ala His Gly Arg Ser Val Leu Ala Gly Val Pro Asp
 15 20 25
 aac atc gtg ctc acg cac gcc tcc ggg gcg ggg ctg gtc gac ggc gcc 328
 Asn Ile Val Leu Thr His Ala Ser Gly Ala Gly Leu Val Asp Gly Ala
 30 35 40
 ttc gtc ggc gcc acg gcc gcg gag ccc agc agc atg cac gtc ttc acc 376
 Phe Val Gly Ala Thr Ala Ala Glu Pro Ser Ser Met His Val Phe Thr
 45 50 55
 ttc ggc acc ctc cgg gac ctg cgc ttc gtg tgc tgc ttc cgg ttc aag 424
 Phe Gly Thr Leu Arg Asp Leu Arg Phe Val Cys Cys Phe Arg Phe Lys
 60 65 70 75
 ctg tgg tgg atg acc cag cgc atg ggc acc tcc ggc cgc gac gtc ccg 472

Leu	Trp	Trp	Met	Thr	Gln	Arg	Met	Gly	Thr	Ser	Gly	Arg	Asp	Val	Pro		
				80					85					90			
ctg	gag	acg	cag	ttc	atg	ctc	ctg	gag	tgc	ggc	ccg	ggc	gac	ggc	gac		520
Leu	Glu	Thr	Gln	Phe	Met	Leu	Leu	Glu	Cys	Gly	Pro	Gly	Asp	Gly	Asp		
			95					100					105				
gcg	gcg	gcg	tac	gtg	gcg	atg	ctg	ccg	ctg	ctg	gag	ggc	cag	ttc	cgg		568
Ala	Ala	Ala	Tyr	Val	Ala	Met	Leu	Pro	Leu	Leu	Glu	Gly	Gln	Phe	Arg		
		110					115					120					
gcg	gcg	ctg	cag	ggc	aac	gac	cgc	gac	gag	ctg	gag	atc	acc	ttc	gag		616
Ala	Ala	Leu	Gln	Gly	Asn	Asp	Arg	Asp	Glu	Leu	Glu	Ile	Thr	Phe	Glu		
		125				130						135					
agc	ggg	gac	aag	gcg	gtg	cag	act	gcg	cat	ggg	acc	tgc	atg	ctg	tac		664
Ser	Gly	Asp	Lys	Ala	Val	Gln	Thr	Ala	His	Gly	Thr	Cys	Met	Leu	Tyr		
140					145				150					155			
gtg	cac	gcc	ggg	acc	aac	cct	ttc	gac	acc	atc	act	cag	gcg	gtc	aag		712
Val	His	Ala	Gly	Thr	Asn	Pro	Phe	Asp	Thr	Ile	Thr	Gln	Ala	Val	Lys		
				160					165					170			
gtg	gtg	gag	aga	cac	atg	cag	acg	ttc	cat	cac	agg	gag	aag	aaa	aag		760
Val	Val	Glu	Arg	His	Met	Gln	Thr	Phe	His	His	Arg	Glu	Lys	Lys	Lys		
			175					180					185				
ctg	ccg	tcg	ttc	gtg	gac	tgg	ttc	ggc	tgg	tgc	acg	tgg	gac	gcc	ttc		808
Leu	Pro	Ser	Phe	Val	Asp	Trp	Phe	Gly	Trp	Cys	Thr	Trp	Asp	Ala	Phe		
		190					195					200					
tac	acc	gac	gtc	acc	gcc	gag	agc	gtc	aag	caa	ggc	ctc	aag	agc	ttg		856
Tyr	Thr	Asp	Val	Thr	Ala	Glu	Ser	Val	Lys	Gln	Gly	Leu	Lys	Ser	Leu		
	205					210					215						
gcg	gac	ggc	ggc	acg	ccg	ccg	cgg	ttc	ctg	atc	atc	gac	gac	ggg	tgg		904
Ala	Asp	Gly	Gly	Thr	Pro	Pro	Arg	Phe	Leu	Ile	Ile	Asp	Asp	Gly	Trp		
220					225				230					235			
cag	cag	atc	ggc	agc	gag	aac	aag	gag	gag	tcc	gcc	aac	gcc	gtc	gtc		952
Gln	Gln	Ile	Gly	Ser	Glu	Asn	Lys	Glu	Glu	Ser	Ala	Asn	Ala	Val	Val		
				240					245					250			
cag	gaa	ggg	cag	ttc	gcc	agt	agg	ctg	acg	ggg	atc	aag	gag	aac	gcc		1000
Gln	Glu	Gly	Gln	Phe	Ala	Ser	Arg	Leu	Thr	Gly	Ile	Lys	Glu	Asn	Ala		
			255					260					265				
aag	ttc	cag	aag	aag	acg	aag	acg	aag	gag	agc	ggc	ggc	ggc	ggc	ggc		1048
Lys	Phe	Gln	Lys	Lys	Thr	Lys	Thr	Lys	Glu	Ser	Gly	Gly	Gly	Gly	Gly		
		270					275					280					
gag	cag	cag	gcg	caa	acg	ccg	ggc	ctg	aag	ctg	ctg	gtg	gag	gag	gcg		1096
Glu	Gln	Gln	Ala	Gln	Thr	Pro	Gly	Leu	Lys	Leu	Leu	Val	Glu	Glu	Ala		
		285				290					295						
aag	cgc	gag	cac	ggc	gtc	agg	tac	gtg	tac	gtg	tgg	cac	gcc	atg	gcg		1144
Lys	Arg	Glu	His	Gly	Val	Arg	Tyr	Val	Tyr	Val	Trp	His	Ala	Met	Ala		

300		305		310		315	
ggg tac tgg ggc ggc gtg aag ccg gcg gcg gag ggg atg gag cac tac							1192
Gly Tyr Trp Gly Gly Val Lys Pro Ala Ala Glu Gly Met Glu His Tyr							
		320		325		330	
gag agc gcg ctg gcg tac ccg gtg cag tcc ccg ggt gtg atg ggc aac							1240
Glu Ser Ala Leu Ala Tyr Pro Val Gln Ser Pro Gly Val Met Gly Asn							
		335		340		345	
cag ccg gac atc gtc atg gac tct ctg tcc gtg ctg ggc ctg ggg ctg							1288
Gln Pro Asp Ile Val Met Asp Ser Leu Ser Val Leu Gly Leu Gly Leu							
		350		355		360	
gtg cac ccg cgc agg gcg ctg agc ttc tac gac gag ctg cac tcc tac							1336
Val His Pro Arg Arg Ala Leu Ser Phe Tyr Asp Glu Leu His Ser Tyr							
		365		370		375	
ctc gcc tcc tgc ggc gtc gat ggc gtc aag gtg gac gtg cag aac atc							1384
Leu Ala Ser Cys Gly Val Asp Gly Val Lys Val Asp Val Gln Asn Ile							
		380		385		390	395
atc gag acg ctc ggc gcc ggg cac ggc ggc cgg gtc gcg ctc acc cgc							1432
Ile Glu Thr Leu Gly Ala Gly His Gly Gly Arg Val Ala Leu Thr Arg							
		400		405		410	
gct tac cac cgc gcg ctc gag gac tcc gtg gcg cgc aac ttc ccc gac							1480
Ala Tyr His Arg Ala Leu Glu Asp Ser Val Ala Arg Asn Phe Pro Asp							
		415		420		425	
aac ggc tgc atc tcc tgc atg tgc cac aac acc gac atg ctc tac agc							1528
Asn Gly Cys Ile Ser Cys Met Cys His Asn Thr Asp Met Leu Tyr Ser							
		430		435		440	
gcg cgc cag acc gcc gtc gtg cgc gcc tcc gac gac ttc tac ccg cgc							1576
Ala Arg Gln Thr Ala Val Val Arg Ala Ser Asp Asp Phe Tyr Pro Arg							
		445		450		455	
gac ccg gcg tcc cac acc gtc cac gtc tcc tcc gtc gcc tac aac acc							1624
Asp Pro Ala Ser His Thr Val His Val Ser Ser Val Ala Tyr Asn Thr							
		460		465		470	475
ctc ttc ctc ggc gag ttc atg cag ccc gac tgg gac atg ttc cat agc							1672
Leu Phe Leu Gly Glu Phe Met Gln Pro Asp Trp Asp Met Phe His Ser							
		480		485		490	
ctg cac ccg gcg gcg gac tac cac ggc gcg gcg agg gca atc ggc ggc							1720
Leu His Pro Ala Ala Asp Tyr His Gly Ala Ala Arg Ala Ile Gly Gly							
		495		500		505	
tgc ccg ata tac gtc agc gac aag cca ggc aac cac aac ttc gag ctg							1768
Cys Pro Ile Tyr Val Ser Asp Lys Pro Gly Asn His Asn Phe Glu Leu							
		510		515		520	
ctc aag aag ctg gtg ctc ccc gac ggc tcc gtg ctc cgc gcg cag ctc							1816
Leu Lys Lys Leu Val Leu Pro Asp Gly Ser Val Leu Arg Ala Gln Leu							
		525		530		535	

ccg ggc cgc ccc acc cgc gat tgc ctc ttc gcc gac ccg gcg cgc gac Pro Gly Arg Pro Thr Arg Asp Cys Leu Phe Ala Asp Pro Ala Arg Asp 540 545 550 555	1864
ggc acg agc ctg ctc aag atc tgg aac gtg aac aag tgc acg ggc gtg Gly Thr Ser Leu Leu Lys Ile Trp Asn Val Asn Lys Cys Thr Gly Val 560 565 570	1912
gtg ggc gtg ttc aac tgc cag ggc gcc ggg tgg tgc cgc gtc acc aag Val Gly Val Phe Asn Cys Gln Gly Ala Gly Trp Cys Arg Val Thr Lys 575 580 585	1960
aag acc cgg gtg cac gac gcg gcg ccg ggg acg ctg acg ggg tcg gtc Lys Thr Arg Val His Asp Ala Ala Pro Gly Thr Leu Thr Gly Ser Val 590 595 600	2008
cgc gcc gac gac gtg gac gtg atc gcc ggc ctc gcc ggg gac ggc tgg Arg Ala Asp Asp Val Asp Val Ile Ala Gly Leu Ala Gly Asp Gly Trp 605 610 615	2056
ggc ggc gag gcc gtc gtg tac gcc tac agg tca ggg gag cta gtc agg Gly Gly Glu Ala Val Val Tyr Ala Tyr Arg Ser Gly Glu Leu Val Arg 620 625 630 635	2104
ctg ccc cag ggc gcc aca ctg ccg gtg acg ctc aag gtg ctg gag ttc Leu Pro Gln Gly Ala Thr Leu Pro Val Thr Leu Lys Val Leu Glu Phe 640 645 650	2152
gag gtg ttc cac gtc tcc ccc gtc agg gcg gtc gcg ccg ggc gtg tcg Glu Val Phe His Val Ser Pro Val Arg Ala Val Ala Pro Gly Val Ser 655 660 665	2200
ttc gcg ccc atc ggc ctg ctc gac atg ttc aac tcc ggc ggg gcg gtg Phe Ala Pro Ile Gly Leu Leu Asp Met Phe Asn Ser Gly Gly Ala Val 670 675 680	2248
gag cag tgc gag gtc cgt ggc ggc gcg aac Glu Gln Cys Glu Val Arg Gly Gly Ala Asn 685 690	2278

<210> 8
 <211> 693
 <212> PRT
 <213> Zea mays

<400> 8

Met Thr Val Thr Pro Arg Ile Thr Val Gly Asp Gly Arg Leu Val Ala 1 5 10 15
--

His Gly Arg Ser Val Leu Ala Gly Val Pro Asp Asn Ile Val Leu Thr 20 25 30

His Ala Ser Gly Ala Gly Leu Val Asp Gly Ala Phe Val Gly Ala Thr
 35 40 45
 Ala Ala Glu Pro Ser Ser Met His Val Phe Thr Phe Gly Thr Leu Arg
 50 55 60
 Asp Leu Arg Phe Val Cys Cys Phe Arg Phe Lys Leu Trp Trp Met Thr
 65 70 75 80
 Gln Arg Met Gly Thr Ser Gly Arg Asp Val Pro Leu Glu Thr Gln Phe
 85 90 95
 Met Leu Leu Glu Cys Gly Pro Gly Asp Gly Asp Ala Ala Ala Tyr Val
 100 105 110
 Ala Met Leu Pro Leu Leu Glu Gly Gln Phe Arg Ala Ala Leu Gln Gly
 115 120 125
 Asn Asp Arg Asp Glu Leu Glu Ile Thr Phe Glu Ser Gly Asp Lys Ala
 130 135 140
 Val Gln Thr Ala His Gly Thr Cys Met Leu Tyr Val His Ala Gly Thr
 145 150 155 160
 Asn Pro Phe Asp Thr Ile Thr Gln Ala Val Lys Val Val Glu Arg His
 165 170 175
 Met Gln Thr Phe His His Arg Glu Lys Lys Lys Leu Pro Ser Phe Val
 180 185 190
 Asp Trp Phe Gly Trp Cys Thr Trp Asp Ala Phe Tyr Thr Asp Val Thr
 195 200 205
 Ala Glu Ser Val Lys Gln Gly Leu Lys Ser Leu Ala Asp Gly Gly Thr
 210 215 220
 Pro Pro Arg Phe Leu Ile Ile Asp Asp Gly Trp Gln Gln Ile Gly Ser
 225 230 235 240
 Glu Asn Lys Glu Glu Ser Ala Asn Ala Val Val Gln Glu Gly Gln Phe
 245 250 255
 Ala Ser Arg Leu Thr Gly Ile Lys Glu Asn Ala Lys Phe Gln Lys Lys

260					265					270					
Thr	Lys	Thr	Lys	Glu	Ser	Gly	Gly	Gly	Gly	Gly	Glu	Gln	Gln	Ala	Gln
		275					280					285			
Thr	Pro	Gly	Leu	Lys	Leu	Leu	Val	Glu	Glu	Ala	Lys	Arg	Glu	His	Gly
	290					295					300				
Val	Arg	Tyr	Val	Tyr	Val	Trp	His	Ala	Met	Ala	Gly	Tyr	Trp	Gly	Gly
305					310					315					320
Val	Lys	Pro	Ala	Ala	Glu	Gly	Met	Glu	His	Tyr	Glu	Ser	Ala	Leu	Ala
				325					330					335	
Tyr	Pro	Val	Gln	Ser	Pro	Gly	Val	Met	Gly	Asn	Gln	Pro	Asp	Ile	Val
			340					345					350		
Met	Asp	Ser	Leu	Ser	Val	Leu	Gly	Leu	Gly	Leu	Val	His	Pro	Arg	Arg
		355					360					365			
Ala	Leu	Ser	Phe	Tyr	Asp	Glu	Leu	His	Ser	Tyr	Leu	Ala	Ser	Cys	Gly
	370					375					380				
Val	Asp	Gly	Val	Lys	Val	Asp	Val	Gln	Asn	Ile	Ile	Glu	Thr	Leu	Gly
385					390					395					400
Ala	Gly	His	Gly	Gly	Arg	Val	Ala	Leu	Thr	Arg	Ala	Tyr	His	Arg	Ala
				405					410					415	
Leu	Glu	Asp	Ser	Val	Ala	Arg	Asn	Phe	Pro	Asp	Asn	Gly	Cys	Ile	Ser
			420				425						430		
Cys	Met	Cys	His	Asn	Thr	Asp	Met	Leu	Tyr	Ser	Ala	Arg	Gln	Thr	Ala
		435					440					445			
Val	Val	Arg	Ala	Ser	Asp	Asp	Phe	Tyr	Pro	Arg	Asp	Pro	Ala	Ser	His
	450					455					460				
Thr	Val	His	Val	Ser	Ser	Val	Ala	Tyr	Asn	Thr	Leu	Phe	Leu	Gly	Glu
465					470					475					480
Phe	Met	Gln	Pro	Asp	Trp	Asp	Met	Phe	His	Ser	Leu	His	Pro	Ala	Ala
				485					490					495	

Asp Tyr His Gly Ala Ala Arg Ala Ile Gly Gly Cys Pro Ile Tyr Val
500 505 510

Ser Asp Lys Pro Gly Asn His Asn Phe Glu Leu Leu Lys Lys Leu Val
515 520 525

Leu Pro Asp Gly Ser Val Leu Arg Ala Gln Leu Pro Gly Arg Pro Thr
530 535 540

Arg Asp Cys Leu Phe Ala Asp Pro Ala Arg Asp Gly Thr Ser Leu Leu
545 550 555 560

Lys Ile Trp Asn Val Asn Lys Cys Thr Gly Val Val Gly Val Phe Asn
565 570 575

Cys Gln Gly Ala Gly Trp Cys Arg Val Thr Lys Lys Thr Arg Val His
580 585 590

Asp Ala Ala Pro Gly Thr Leu Thr Gly Ser Val Arg Ala Asp Asp Val
595 600 605

Asp Val Ile Ala Gly Leu Ala Gly Asp Gly Trp Gly Gly Glu Ala Val
610 615 620

Val Tyr Ala Tyr Arg Ser Gly Glu Leu Val Arg Leu Pro Gln Gly Ala
625 630 635 640

Thr Leu Pro Val Thr Leu Lys Val Leu Glu Phe Glu Val Phe His Val
645 650 655

Ser Pro Val Arg Ala Val Ala Pro Gly Val Ser Phe Ala Pro Ile Gly
660 665 670

Leu Leu Asp Met Phe Asn Ser Gly Gly Ala Val Glu Gln Cys Glu Val
675 680 685

Arg Gly Gly Ala Asn
690

<210> 9
<211> 1590
<212> DNA

<213> Zea mays

<220>

<221> CDS

<222> (435)..(1589)

<400> 9

```
ccacgcgtcc gggctcacgg tcacggcctc acccatccgc ttgccatcca atccgacccg      60
gccccatcga gaacgtgcgc gtgcgcgctg cctaggctga tacgagcagc cagcaagcaa      120
gcaacagatt taaccgccgc cgatgtccgt gatggcgcgg aggctgagct ccagctgcag      180
cagggccgctc gcgtcctcgt gcccttccaa atcttctctg cggcgccgta tatataccct      240
tccttcccgc ccgctgctac tcgcattctc gctgcgggcc tcgcctctgt gtccggggcg      300
cgctctctcc tcctcccacc ccgcctcggt gttcgttttag gactctcgcg gcggccaagg      360
agtcgtcgtc gccgccgtcg accagcgtct cgccgaccca gcagcagtcc cggagtacga      420
tagagggagg cgag  atg acg gtc gcc tcg tcc gtc agg ctc gcc ggc ggc      470
                Met Thr Val Ala Ser Ser Val Arg Leu Ala Gly Gly
                1                    5                10
aat ctg acg gta tgc ggg cgg acg gtg ctg tcc ggg gtg ccg gac gcg      518
Asn Leu Thr Val Cys Gly Arg Thr Val Leu Ser Gly Val Pro Asp Ala
                15                    20                25
gtg gtg gcc acg tcg gcg gcg acg gag gga gcg gtc gac ggg atc ttc      566
Val Val Ala Thr Ser Ala Ala Thr Glu Gly Ala Val Asp Gly Ile Phe
                30                    35                40
ctc ggc gcc gac ttc gcc gag ccg gcc gcc cgg cac gtc gtc tcc ctc      614
Leu Gly Ala Asp Phe Ala Glu Pro Ala Ala Arg His Val Val Ser Leu
                45                    50                55                60
ggc gac ctg agg gac gtt cgg ttc atg gcg tgc ttc cga ttc aag cta      662
Gly Asp Leu Arg Asp Val Arg Phe Met Ala Cys Phe Arg Phe Lys Leu
                65                    70                75
tgg tgg atg gcg cag cgg atg ggg gag aaa ggc agc gac gtc ccg cgc      710
Trp Trp Met Ala Gln Arg Met Gly Glu Lys Gly Ser Asp Val Pro Arg
                80                    85                90
gag acc cag ttc ctg ctc gtc gag tcc agg ggc gtc ggc gac gag gac      758
Glu Thr Gln Phe Leu Leu Val Glu Ser Arg Gly Val Gly Asp Glu Asp
                95                    100                105
gcg gcg tac gtc gtg ttc ctc ccg ctc gtg gag ggc gcg ttc cgg gcc      806
Ala Ala Tyr Val Val Phe Leu Pro Leu Val Glu Gly Ala Phe Arg Ala
                110                    115                120
agc atc caa ggc ggt gcc ggc gac gcg ctg gag ctc tgc gtc gag agc      854
Ser Ile Gln Gly Gly Ala Gly Asp Ala Leu Glu Leu Cys Val Glu Ser
                125                    130                135                140
```

ggg gac gac gac acg cgc gcg gcg tcc ttc gag cga tcc ctc ttc gtg	902
Gly Asp Asp Asp Thr Arg Ala Ala Ser Phe Glu Arg Ser Leu Phe Val	
145 150 155	
ggc gcc gcg gag tcc gac ccc ttc gcg gcc atc tcc ggc gca gtc gcc	950
Gly Ala Ala Glu Ser Asp Pro Phe Ala Ala Ile Ser Gly Ala Val Ala	
160 165 170	
gcc gcc aag tcc gcg ctc agg acg ttc cgg gtc cgc gcc gag aag aag	998
Ala Ala Lys Ser Ala Leu Arg Thr Phe Arg Val Arg Ala Glu Lys Lys	
175 180 185	
ctc ccg ggc atc gtc gac tac ttc ggc tgg tgc acc tgg gac gcc ttt	1046
Leu Pro Gly Ile Val Asp Tyr Phe Gly Trp Cys Thr Trp Asp Ala Phe	
190 195 200	
tac cag gac gtc acc cag gag ggc gtc gag gcc ggg ctc cgc agc ctc	1094
Tyr Gln Asp Val Thr Gln Glu Gly Val Glu Ala Gly Leu Arg Ser Leu	
205 210 215 220	
atc gcc ggc ggc gcg ccg ccc aag ttc gtc atc atc gac gac ggc tgg	1142
Ile Ala Gly Gly Ala Pro Pro Lys Phe Val Ile Ile Asp Asp Gly Trp	
225 230 235	
cag tcc gtc gcc acc gac acc aac gaa tcg gcc gga gag gac aag ccg	1190
Gln Ser Val Ala Thr Asp Thr Asn Glu Ser Ala Gly Glu Asp Lys Pro	
240 245 250	
ccc ctc cta tct cgg ctc acc ggc atc aag gag aac agc aag ttc cag	1238
Pro Leu Leu Ser Arg Leu Thr Gly Ile Lys Glu Asn Ser Lys Phe Gln	
255 260 265	
aac gcg gac gac ccg gcc gcc ggc atc aag acg gtg gtg cgc ttg gcg	1286
Asn Ala Asp Asp Pro Ala Ala Gly Ile Lys Thr Val Val Arg Leu Ala	
270 275 280	
aag gag gag tac cgg ctc aag tac gtc tac gtg tgg cac gcc atc acc	1334
Lys Glu Glu Tyr Arg Leu Lys Tyr Val Tyr Val Trp His Ala Ile Thr	
285 290 295 300	
ggc tac tgg ggc ggc gtc cgg ccc ggc gag gag cac tac cgc tcc agc	1382
Gly Tyr Trp Gly Gly Val Arg Pro Gly Glu Glu His Tyr Arg Ser Ser	
305 310 315	
atg cag ttc ccc aag gtt tcg ccg ggc gtc atg gag aac gag ccc ggc	1430
Met Gln Phe Pro Lys Val Ser Pro Gly Val Met Glu Asn Glu Pro Gly	
320 325 330	
atg aag acc gac gtg ctc acc gtg cag ggg ctc ggc ctc gtg cac ccg	1478
Met Lys Thr Asp Val Leu Thr Val Gln Gly Leu Gly Leu Val His Pro	
335 340 345	
cgc gcc gtg tac cgc ttc tac gac gag ctc cac gcg tac ctc gcc gcc	1526
Arg Ala Val Tyr Arg Phe Tyr Asp Glu Leu His Ala Tyr Leu Ala Ala	
350 355 360	
gcc gga gtc gac ggc gtc aag gtg gac gtg cag tgc atc ctg gag acg	1574

Ala Gly Val Asp Gly Val Lys Val Asp Val Gln Cys Ile Leu Glu Thr
 365 370 375 380

ctc ggc gcc ggc cac g
 Leu Gly Ala Gly His
 385

1590

<210> 10
 <211> 385
 <212> PRT
 <213> Zea mays

<400> 10

Met Thr Val Ala Ser Ser Val Arg Leu Ala Gly Gly Asn Leu Thr Val
 1 5 10 15

Cys Gly Arg Thr Val Leu Ser Gly Val Pro Asp Ala Val Val Ala Thr
 20 25 30

Ser Ala Ala Thr Glu Gly Ala Val Asp Gly Ile Phe Leu Gly Ala Asp
 35 40 45

Phe Ala Glu Pro Ala Ala Arg His Val Val Ser Leu Gly Asp Leu Arg
 50 55 60

Asp Val Arg Phe Met Ala Cys Phe Arg Phe Lys Leu Trp Trp Met Ala
 65 70 75 80

Gln Arg Met Gly Glu Lys Gly Ser Asp Val Pro Arg Glu Thr Gln Phe
 85 90 95

Leu Leu Val Glu Ser Arg Gly Val Gly Asp Glu Asp Ala Ala Tyr Val
 100 105 110

Val Phe Leu Pro Leu Val Glu Gly Ala Phe Arg Ala Ser Ile Gln Gly
 115 120 125

Gly Ala Gly Asp Ala Leu Glu Leu Cys Val Glu Ser Gly Asp Asp Asp
 130 135 140

Thr Arg Ala Ala Ser Phe Glu Arg Ser Leu Phe Val Gly Ala Ala Glu
 145 150 155 160

Ser Asp Pro Phe Ala Ala Ile Ser Gly Ala Val Ala Ala Ala Lys Ser
 165 170 175

Ala Leu Arg Thr Phe Arg Val Arg Ala Glu Lys Lys Leu Pro Gly Ile
180 185 190

Val Asp Tyr Phe Gly Trp Cys Thr Trp Asp Ala Phe Tyr Gln Asp Val
195 200 205

Thr Gln Glu Gly Val Glu Ala Gly Leu Arg Ser Leu Ile Ala Gly Gly
210 215 220

Ala Pro Pro Lys Phe Val Ile Ile Asp Asp Gly Trp Gln Ser Val Ala
225 230 235 240

Thr Asp Thr Asn Glu Ser Ala Gly Glu Asp Lys Pro Pro Leu Leu Ser
245 250 255

Arg Leu Thr Gly Ile Lys Glu Asn Ser Lys Phe Gln Asn Ala Asp Asp
260 265 270

Pro Ala Ala Gly Ile Lys Thr Val Val Arg Leu Ala Lys Glu Glu Tyr
275 280 285

Arg Leu Lys Tyr Val Tyr Val Trp His Ala Ile Thr Gly Tyr Trp Gly
290 295 300

Gly Val Arg Pro Gly Glu Glu His Tyr Arg Ser Ser Met Gln Phe Pro
305 310 315 320

Lys Val Ser Pro Gly Val Met Glu Asn Glu Pro Gly Met Lys Thr Asp
325 330 335

Val Leu Thr Val Gln Gly Leu Gly Leu Val His Pro Arg Ala Val Tyr
340 345 350

Arg Phe Tyr Asp Glu Leu His Ala Tyr Leu Ala Ala Ala Gly Val Asp
355 360 365

Gly Val Lys Val Asp Val Gln Cys Ile Leu Glu Thr Leu Gly Ala Gly
370 375 380

His
385

```

<210> 11
<211> 2483
<212> DNA
<213> Zea mays

<220>
<221> CDS
<222> (104)..(2347)

<400> 11
ccacgcgtcc gcgccagcca actatcgccg ctgataacca acccaatcca acctaaccga      60

accctgctct ctgccgacgc ggattcgaat ccgaggacga tcg atg acg gtg ggc      115
                                   Met Thr Val Gly
                                   1

gcc gcc atc gcc gtc cag gac ggc agc ctc ctg gcg ctg ggc gcc aag      163
Ala Gly Ile Ala Val Gln Asp Gly Ser Leu Leu Ala Leu Gly Ala Lys
5                               10                               15                               20

gtc ctg cgg gag gtg cgc ggc aac gtg ctc gtg acg ccg gcc gcc ggc      211
Val Leu Arg Glu Val Arg Gly Asn Val Leu Val Thr Pro Ala Ala Gly
                               25                               30                               35

ggg ggc cta acc aac ggc gcg ttc ctc ggc gtc cgg tcc gcg ccc gcc      259
Gly Gly Leu Thr Asn Gly Ala Phe Leu Gly Val Arg Ser Ala Pro Ala
                               40                               45                               50

gcc agc cgc agc atc ttc ccc gtc ggc aag ctc cgg gac cag cgg ttc      307
Ala Ser Arg Ser Ile Phe Pro Val Gly Lys Leu Arg Asp Gln Arg Phe
55                               60                               65

gtg tgc acg ttc cgg ttc aag atg tgg tgg atg acg caa agg atg ggc      355
Val Cys Thr Phe Arg Phe Lys Met Trp Trp Met Thr Gln Arg Met Gly
70                               75                               80

tcc gca agc cgc gac atc ccc tcc gag acg caa ttt ctg ctg gtg gaa      403
Ser Ala Ser Arg Asp Ile Pro Ser Glu Thr Gln Phe Leu Leu Val Glu
85                               90                               95                               100

agg tcc ggc ggc ggc gaa caa ccc gtc gtg tac acc gtc ttc ctc ccc      451
Arg Ser Gly Gly Gly Glu Gln Pro Val Val Tyr Thr Val Phe Leu Pro
                               105                               110                               115

gtg ctg gag ggc tcg ttc cgt gcc gtt ctt cag ggc aac gcc gcc gac      499
Val Leu Glu Gly Ser Phe Arg Ala Val Leu Gln Gly Asn Ala Ala Asp
                               120                               125                               130

gag ctg gag atc tgc ctg gag agc ggc gac ccg gac gtg gaa tct ttc      547
Glu Leu Glu Ile Cys Leu Glu Ser Gly Asp Pro Asp Val Glu Ser Phe
                               135                               140                               145

caa ggc tcc cat ctg gtc ttc gtt ggc gcc gga tcg gac ccg ttc gag      595
Gln Gly Ser His Leu Val Phe Val Gly Ala Gly Ser Asp Pro Phe Glu
150                               155                               160

```

gtc atc aca agt tca gtc aag gct gtc gag agg cac ttg cag acg ttc Val Ile Thr Ser Ser Val Lys Ala Val Glu Arg His Leu Gln Thr Phe 165 170 175 180	643
tct cac agg gag aag aaa aag atg cca gac att ctg aac tgg ttt ggc Ser His Arg Glu Lys Lys Lys Met Pro Asp Ile Leu Asn Trp Phe Gly 185 190 195	691
tgg tgc acg tgg gac gcg ttc tac acc aat gtc aac gcc cag gga gtg Trp Cys Thr Trp Asp Ala Phe Tyr Thr Asn Val Asn Ala Gln Gly Val 200 205 210	739
aag caa gga ttg cag agc ttg gaa aaa ggc ggg gtc tct cct agg ttc Lys Gln Gly Leu Gln Ser Leu Glu Lys Gly Gly Val Ser Pro Arg Phe 215 220 225	787
gtc ata atc gac gac gga tgg cag tcc gtc gcc atg gac cct gtg gga Val Ile Ile Asp Asp Gly Trp Gln Ser Val Ala Met Asp Pro Val Gly 230 235 240	835
atc gct tgc cta tct gac aac tca gcc aac ttc gca aac agg ctg act Ile Ala Cys Leu Ser Asp Asn Ser Ala Asn Phe Ala Asn Arg Leu Thr 245 250 255 260	883
cac atc agg gag aac cac aag ttt cag aaa aat ggc agg gag ggt cac His Ile Arg Glu Asn His Lys Phe Gln Lys Asn Gly Arg Glu Gly His 265 270 275	931
agg gaa gat gac cca gcg aag ggc cta gca cac gtc gtc aat gag att Arg Glu Asp Asp Pro Ala Lys Gly Leu Ala His Val Val Asn Glu Ile 280 285 290	979
aag ggg aag cat cag ctc aag tat gtg tac gta tgg cat gcc atc acc Lys Gly Lys His Gln Leu Lys Tyr Val Tyr Val Trp His Ala Ile Thr 295 300 305	1027
gga tac tgg ggc gga gtg agg ccg ggt gca gct gga atg gag cac tac Gly Tyr Trp Gly Gly Val Arg Pro Gly Ala Ala Gly Met Glu His Tyr 310 315 320	1075
gga tca aag atg cag ccg ccc gtg cca tcg ccg ggg gtt cag aag aac Gly Ser Lys Met Gln Arg Pro Val Pro Ser Pro Gly Val Gln Lys Asn 325 330 335 340	1123
gag cgc tgc gac gcc ctg gac agc atg acg gcc aac ggg ctg ggc ctc Glu Arg Cys Asp Ala Leu Asp Ser Met Thr Ala Asn Gly Leu Gly Leu 345 350 355	1171
gtg aac cct gac agg gcg ttc agt ttc tac gac gag ctc cac tcg tac Val Asn Pro Asp Arg Ala Phe Ser Phe Tyr Asp Glu Leu His Ser Tyr 360 365 370	1219
ctc gcg tct gcc ggg atc gac ggg gtg aag gtg gac gtg cag aac gtc Leu Ala Ser Ala Gly Ile Asp Gly Val Lys Val Asp Val Gln Asn Val 375 380 385	1267
ctc gag acg ctg ggc gcc ggc cat ggc ggg agg gtg atg ctg gcg agg	1315

Leu	Glu	Thr	Leu	Gly	Ala	Gly	His	Gly	Gly	Arg	Val	Met	Leu	Ala	Arg		
390						395					400						
aag	tac	cag	cag	gct	ctg	gaa	gcg	tcc	gtc	gcc	agg	aac	ttc	cct	gac	1363	
Lys	Tyr	Gln	Gln	Ala	Leu	Glu	Ala	Ser	Val	Ala	Arg	Asn	Phe	Pro	Asp		
405				410						415					420		
aat	ggc	atc	ata	tcg	tgc	atg	agc	cac	agc	acg	gac	aac	ttg	tac	agc	1411	
Asn	Gly	Ile	Ile	Ser	Cys	Met	Ser	His	Ser	Thr	Asp	Asn	Leu	Tyr	Ser		
				425					430					435			
tcg	aaa	cgg	agc	gcg	gtg	att	aga	gcc	tct	gac	gat	ttc	tgg	ccg	aga	1459	
Ser	Lys	Arg	Ser	Ala	Val	Ile	Arg	Ala	Ser	Asp	Asp	Phe	Trp	Pro	Arg		
			440					445					450				
gac	ccc	gct	tcc	cat	acc	ata	cac	gtc	gcg	tcc	gtc	gct	tat	aac	acc	1507	
Asp	Pro	Ala	Ser	His	Thr	Ile	His	Val	Ala	Ser	Val	Ala	Tyr	Asn	Thr		
		455					460					465					
gtc	ttt	ctt	ggg	gag	ttc	atg	cag	cca	gac	tgg	gac	atg	ttc	cat	agt	1555	
Val	Phe	Leu	Gly	Glu	Phe	Met	Gln	Pro	Asp	Trp	Asp	Met	Phe	His	Ser		
470						475					480						
gtt	cat	ccc	atg	gct	gag	tac	cat	gct	gcg	gct	cga	gcg	gtt	ggt	ggc	1603	
Val	His	Pro	Met	Ala	Glu	Tyr	His	Ala	Ala	Ala	Arg	Ala	Val	Gly	Gly		
485					490					495					500		
tgt	gcc	ata	tat	gtc	agc	gac	aag	cct	ggg	agc	cat	gac	ttc	aat	ctg	1651	
Cys	Ala	Ile	Tyr	Val	Ser	Asp	Lys	Pro	Gly	Ser	His	Asp	Phe	Asn	Leu		
				505					510					515			
ctc	aag	aag	ctc	gtg	ctt	ccc	gac	gga	tcg	atc	ctg	cgc	gca	aag	ctc	1699	
Leu	Lys	Lys	Leu	Val	Leu	Pro	Asp	Gly	Ser	Ile	Leu	Arg	Ala	Lys	Leu		
			520					525					530				
ccc	ggg	agg	cca	acc	aga	gac	tgc	ctc	ttc	tct	gac	ccc	gca	agg	gac	1747	
Pro	Gly	Arg	Pro	Thr	Arg	Asp	Cys	Leu	Phe	Ser	Asp	Pro	Ala	Arg	Asp		
		535					540					545					
ggc	aaa	agc	gtt	ctc	aag	ata	tgg	aac	ttg	aac	gaa	cac	tcc	ggc	gtc	1795	
Gly	Lys	Ser	Val	Leu	Lys	Ile	Trp	Asn	Leu	Asn	Glu	His	Ser	Gly	Val		
550						555					560						
gtt	ggc	gcc	ttc	aac	tgc	caa	ggc	gcc	ggc	tgg	tgc	cgg	gta	gcc	aag	1843	
Val	Gly	Ala	Phe	Asn	Cys	Gln	Gly	Ala	Gly	Trp	Cys	Arg	Val	Ala	Lys		
565					570					575					580		
aag	aac	ctc	atc	cac	gac	cag	cag	ccc	gga	acg	ttg	agc	ggc	gtc	atc	1891	
Lys	Asn	Leu	Ile	His	Asp	Gln	Gln	Pro	Gly	Thr	Leu	Ser	Gly	Val	Ile		
				585					590					595			
cgg	gcg	cag	gac	gtg	gag	cac	ctt	gga	agg	gtg	gct	gat	cac	ggt	tgg	1939	
Arg	Ala	Gln	Asp	Val	Glu	His	Leu	Gly	Arg	Val	Ala	Asp	His	Gly	Trp		
			600					605					610				
aac	ggc	gac	gtg	gtc	gtg	tat	ttg	cac	gtg	gga	ggg	gag	gtg	gtg	tac	1987	
Asn	Gly	Asp	Val	Val	Val	Tyr	Leu	His	Val	Gly	Gly	Glu	Val	Val	Tyr		

615	620	625	
ctg ccg aag aac gcc ttg	ctg cct gtg acg ctg	aga tcg cgc gag tat	2035
Leu Pro Lys Asn Ala Leu	Leu Pro Val Thr Leu	Arg Ser Arg Glu Tyr	
630	635	640	
gag gtg ttc acc gtc gtc	cct ctc aag cac ctg	cca aac ggt acc tcc	2083
Glu Val Phe Thr Val Val	Pro Leu Lys His Leu	Pro Asn Gly Thr Ser	
645	650	655	660
ttt gcg gcg atc ggc ctt	ctc ggc atg ttc aac	tcc ggt ggc gcg gtg	2131
Phe Ala Ala Ile Gly Leu	Leu Gly Met Phe Asn	Ser Gly Gly Ala Val	
665	670	675	
agg gag ctg aga ttc ggt	ggt gag gat gcc gac	gtc gag ctc aga gtg	2179
Arg Glu Leu Arg Phe Gly	Gly Glu Asp Ala Asp	Val Glu Leu Arg Val	
680	685	690	
cgg ggc tcg ggc acg gtc	gga gct tat tcc tcg	acc aag cca acg tgt	2227
Arg Gly Ser Gly Thr Val	Gly Ala Tyr Ser Ser	Thr Lys Pro Thr Cys	
695	700	705	
gtc gcc gtc gat tcc aag	gcg gtt ggt ttc tcc	tac gat gcc acc tgt	2275
Val Ala Val Asp Ser Lys	Ala Val Gly Phe Ser	Tyr Asp Ala Thr Cys	
710	715	720	
ggc ctc atc agc ttc gag	ctc ggc att ccc gac	caa gaa atg tac ttg	2323
Gly Leu Ile Ser Phe Glu	Leu Gly Ile Pro Asp	Gln Glu Met Tyr Leu	
725	730	735	740
tgg acg gtt aca gta gag	tat tga agttacaact	gagaattgag atagattttc	2377
Trp Thr Val Thr Val Glu	Tyr		
745			
taatgcgtca gagaacgccc	ggtggtgtag gtattctgat	ttattcagtg ttgtactttc	2437
tattgttagt tatatatatt	ctgtacacat cccgggattt	tatgac	2483
<210> 12			
<211> 747			
<212> PRT			
<213> Zea mays			
<400> 12			
Met Thr Val Gly Ala Gly	Ile Ala Val Gln Asp	Gly Ser Leu Leu Ala	
1	5	10	15
Leu Gly Ala Lys Val Leu	Arg Glu Val Arg Gly	Asn Val Leu Val Thr	
20	25	30	
Pro Ala Ala Gly Gly Gly	Leu Thr Asn Gly Ala	Phe Leu Gly Val Arg	
35	40	45	

Ser Ala Pro Ala Ala Ser Arg Ser Ile Phe Pro Val Gly Lys Leu Arg
 50 55 60

Asp Gln Arg Phe Val Cys Thr Phe Arg Phe Lys Met Trp Trp Met Thr
 65 70 75 80

Gln Arg Met Gly Ser Ala Ser Arg Asp Ile Pro Ser Glu Thr Gln Phe
 85 90 95

Leu Leu Val Glu Arg Ser Gly Gly Gly Glu Gln Pro Val Val Tyr Thr
 100 105 110

Val Phe Leu Pro Val Leu Glu Gly Ser Phe Arg Ala Val Leu Gln Gly
 115 120 125

Asn Ala Ala Asp Glu Leu Glu Ile Cys Leu Glu Ser Gly Asp Pro Asp
 130 135 140

Val Glu Ser Phe Gln Gly Ser His Leu Val Phe Val Gly Ala Gly Ser
 145 150 155 160

Asp Pro Phe Glu Val Ile Thr Ser Ser Val Lys Ala Val Glu Arg His
 165 170 175

Leu Gln Thr Phe Ser His Arg Glu Lys Lys Lys Met Pro Asp Ile Leu
 180 185 190

Asn Trp Phe Gly Trp Cys Thr Trp Asp Ala Phe Tyr Thr Asn Val Asn
 195 200 205

Ala Gln Gly Val Lys Gln Gly Leu Gln Ser Leu Glu Lys Gly Gly Val
 210 215 220

Ser Pro Arg Phe Val Ile Ile Asp Asp Gly Trp Gln Ser Val Ala Met
 225 230 235 240

Asp Pro Val Gly Ile Ala Cys Leu Ser Asp Asn Ser Ala Asn Phe Ala
 245 250 255

Asn Arg Leu Thr His Ile Arg Glu Asn His Lys Phe Gln Lys Asn Gly
 260 265 270

Arg Glu Gly His Arg Glu Asp Asp Pro Ala Lys Gly Leu Ala His Val
 275 280 285

Val Asn Glu Ile Lys Gly Lys His Gln Leu Lys Tyr Val Tyr Val Trp
 290 295 300

His Ala Ile Thr Gly Tyr Trp Gly Gly Val Arg Pro Gly Ala Ala Gly
 305 310 315 320

Met Glu His Tyr Gly Ser Lys Met Gln Arg Pro Val Pro Ser Pro Gly
 325 330 335

Val Gln Lys Asn Glu Arg Cys Asp Ala Leu Asp Ser Met Thr Ala Asn
 340 345 350

Gly Leu Gly Leu Val Asn Pro Asp Arg Ala Phe Ser Phe Tyr Asp Glu
 355 360 365

Leu His Ser Tyr Leu Ala Ser Ala Gly Ile Asp Gly Val Lys Val Asp
 370 375 380

Val Gln Asn Val Leu Glu Thr Leu Gly Ala Gly His Gly Gly Arg Val
 385 390 395 400

Met Leu Ala Arg Lys Tyr Gln Gln Ala Leu Glu Ala Ser Val Ala Arg
 405 410 415

Asn Phe Pro Asp Asn Gly Ile Ile Ser Cys Met Ser His Ser Thr Asp
 420 425 430

Asn Leu Tyr Ser Ser Lys Arg Ser Ala Val Ile Arg Ala Ser Asp Asp
 435 440 445

Phe Trp Pro Arg Asp Pro Ala Ser His Thr Ile His Val Ala Ser Val
 450 455 460

Ala Tyr Asn Thr Val Phe Leu Gly Glu Phe Met Gln Pro Asp Trp Asp
 465 470 475 480

Met Phe His Ser Val His Pro Met Ala Glu Tyr His Ala Ala Ala Arg
 485 490 495

Ala Val Gly Gly Cys Ala Ile Tyr Val Ser Asp Lys Pro Gly Ser His

500					505					510					
Asp	Phe	Asn	Leu	Leu	Lys	Lys	Leu	Val	Leu	Pro	Asp	Gly	Ser	Ile	Leu
		515					520					525			
Arg	Ala	Lys	Leu	Pro	Gly	Arg	Pro	Thr	Arg	Asp	Cys	Leu	Phe	Ser	Asp
	530					535					540				
Pro	Ala	Arg	Asp	Gly	Lys	Ser	Val	Leu	Lys	Ile	Trp	Asn	Leu	Asn	Glu
545					550					555					560
His	Ser	Gly	Val	Val	Gly	Ala	Phe	Asn	Cys	Gln	Gly	Ala	Gly	Trp	Cys
			565						570					575	
Arg	Val	Ala	Lys	Lys	Asn	Leu	Ile	His	Asp	Gln	Gln	Pro	Gly	Thr	Leu
			580					585					590		
Ser	Gly	Val	Ile	Arg	Ala	Gln	Asp	Val	Glu	His	Leu	Gly	Arg	Val	Ala
		595					600					605			
Asp	His	Gly	Trp	Asn	Gly	Asp	Val	Val	Val	Tyr	Leu	His	Val	Gly	Gly
	610					615					620				
Glu	Val	Val	Tyr	Leu	Pro	Lys	Asn	Ala	Leu	Leu	Pro	Val	Thr	Leu	Arg
625					630					635					640
Ser	Arg	Glu	Tyr	Glu	Val	Phe	Thr	Val	Val	Pro	Leu	Lys	His	Leu	Pro
				645					650					655	
Asn	Gly	Thr	Ser	Phe	Ala	Ala	Ile	Gly	Leu	Leu	Gly	Met	Phe	Asn	Ser
			660					665						670	
Gly	Gly	Ala	Val	Arg	Glu	Leu	Arg	Phe	Gly	Gly	Glu	Asp	Ala	Asp	Val
		675					680					685			
Glu	Leu	Arg	Val	Arg	Gly	Ser	Gly	Thr	Val	Gly	Ala	Tyr	Ser	Ser	Thr
	690					695					700				
Lys	Pro	Thr	Cys	Val	Ala	Val	Asp	Ser	Lys	Ala	Val	Gly	Phe	Ser	Tyr
705					710					715					720
Asp	Ala	Thr	Cys	Gly	Leu	Ile	Ser	Phe	Glu	Leu	Gly	Ile	Pro	Asp	Gln
				725					730					735	

Glu Met Tyr Leu Trp Thr Val Thr Val Glu Tyr
740 745

<210> 13
<211> 20
<212> DNA
<213> Zea mays

<400> 13
gaccacactc aaaccagcca 20

<210> 14
<211> 35
<212> DNA
<213> Zea mays

<400> 14
taatacgact cactataggg cagaagggcc accac 35

<210> 15
<211> 20
<212> DNA
<213> Zea mays

<400> 15
aaccgccagc caacaaacag 20

<210> 16
<211> 34
<212> DNA
<213> Zea mays

<400> 16
taatacgact cactataggg tcgcccgcca ggaa 34